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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/062,790	02/01/2002	Shreeram V. Deshpande	31937	3371

7590 05/20/2004

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EXAMINER

ASHTON, ROSEMARY E

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AS

Office Action Summary	Application No.		Applicant(s)	
	10/062,790		DESHPANDE, SHREERAM V.	
	Examiner		Art Unit	
	Rosemary E. Ashton		1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-36,45 and 46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 45 and 46 is/are allowed.
- 6) ☒ Claim(s) 7-33,35 is/are rejected.
- 7) ☒ Claim(s) 34,36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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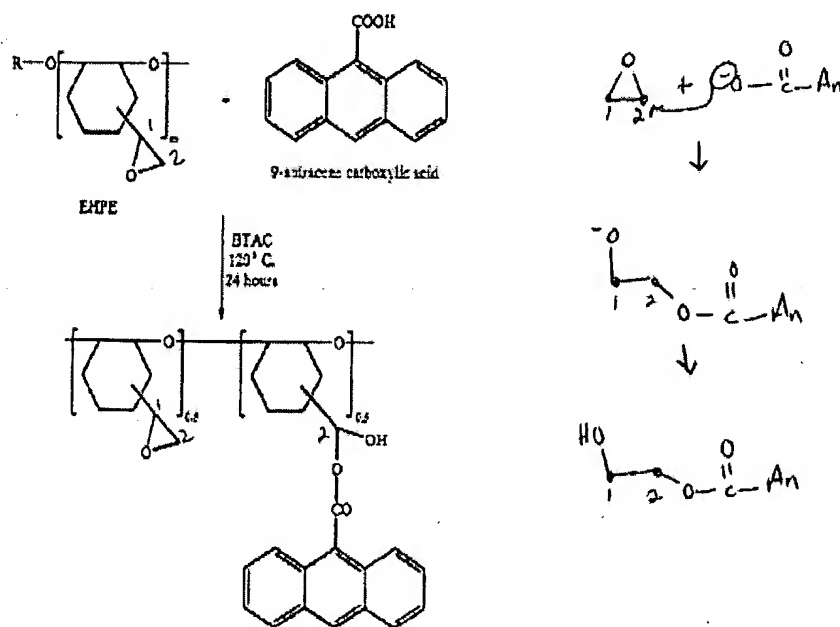
DETAILED ACTION

1. Claims 45 and 46 do not have proper status identifiers and should be listed as (New) claims. To shorten prosecution the examiner did not send out a notice of an improper amendment.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 7-31, 33, 35, 39-43 are rejected under 35 U.S.C. 102(e) as being anticipated by Puligadda et al for the reasons stated in the prior office action and repeated below.

Puligadda teaches an antireflective composition (ARC) comprising a polymer have the formula below (example 1). The final product polymer below is incorrect in that it is missing a carbon atom from the epoxide when the carboxylic acid opens the epoxide ring and binds to the carbon atom of the epoxide ring as shown below.

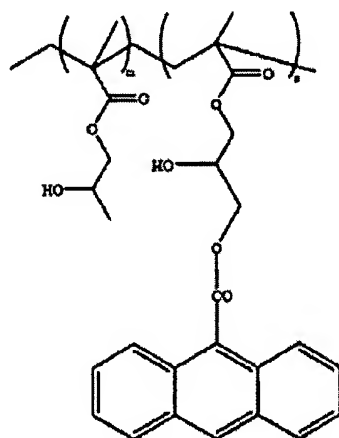


The polymer is a polyether formed by reacting epoxy groups with the acid of the chromophore such as the above anthracene compound. The molecular weight of the polymer is 1,000 to 15,000 as shown in section 10, the backbone is an acrylic group and the weight % of X

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is 35 % as in claim 6. The reaction is done in the presence of the catalyst BTAC which is benzytriethylammonium chloride at 120 °C as shown in sections 24 and 31.

Example 2 has the polymer below and is an acrylic resin having a CH₂ between the polymer acrylic backbone and the -CH(OH)CH₂OC(O)An group.



The ARC has a crosslinking agent, such as melamine which crosslinks the hydroxyl groups of the chromophore monomer. As shown in Example 2, Cymel 303 is a melamine resin which undergoes reaction with the hydroxyl group of the anthracene monomer as in claim 18. The composition also contains the catalyst p-toluenesulfonic acid and PGMEA as claimed. The composition is spin-coated on a silicon wafer substrate and cured at 205 °C. In section 35 the composition is also coated on a hole, which Puligadda calls a trench, as in claim 29.

Phenolic groups for X are taught in section 13 as in claims 9 and 20.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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5. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Puligadda cited above.

As shown in Figure 1 and section 37 Puligadda teaches a method of coating the cured ARC with a photoresist, exposing and developing the photoresist, however, it does not teach etching the developed photoresist. The examiner takes official notice that etching of the photoresist is well known in the art and that it would have been obvious to one of ordinary skill in the art to etch the photoresist because such a procedure is well known in the art of photolithography.

Response to Amendment

5. The Declaration filed on November 13, 2003 under 37 CFR 1.131 has been considered but is ineffective to overcome the Puligadda reference.

6. The Puligadda et al. reference is a U.S. patent or U.S. patent application publication of a pending or patented application that claims the rejected invention. An affidavit or declaration is inappropriate under 37 CFR 1.131(a) when the reference is claiming the same patentable invention, see MPEP § 2306. If the reference and this application are not commonly owned, the reference can only be overcome by establishing priority of invention through interference proceedings. See MPEP Chapter 2300 for information on initiating interference proceedings. If the reference and this application are commonly owned, the patent may be disqualified as prior art by an affidavit or declaration under 37 CFR 1.130. See MPEP § 718.

Allowable Subject Matter

7. Claims 45 and 46 are allowed and claims 34 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is an examiner's statement of reasons for allowance: Puligadda does not teach the method in claims 45 and 46 and it does not teach that X is one of the two groups shown in claims 34 or the amount of X as in claim 36.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rosemary E. Ashton whose telephone number is 571-272-1326. The examiner works a flexible work schedule and can normally be reached M-F between 10:00 am – 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached at 571-272-1385.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through

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Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

rea
May 17, 2004



Rosemary E. Ashton
Primary Examiner
Art Unit 1752

ROSEMARY ASHTON
PRIMARY EXAMINER